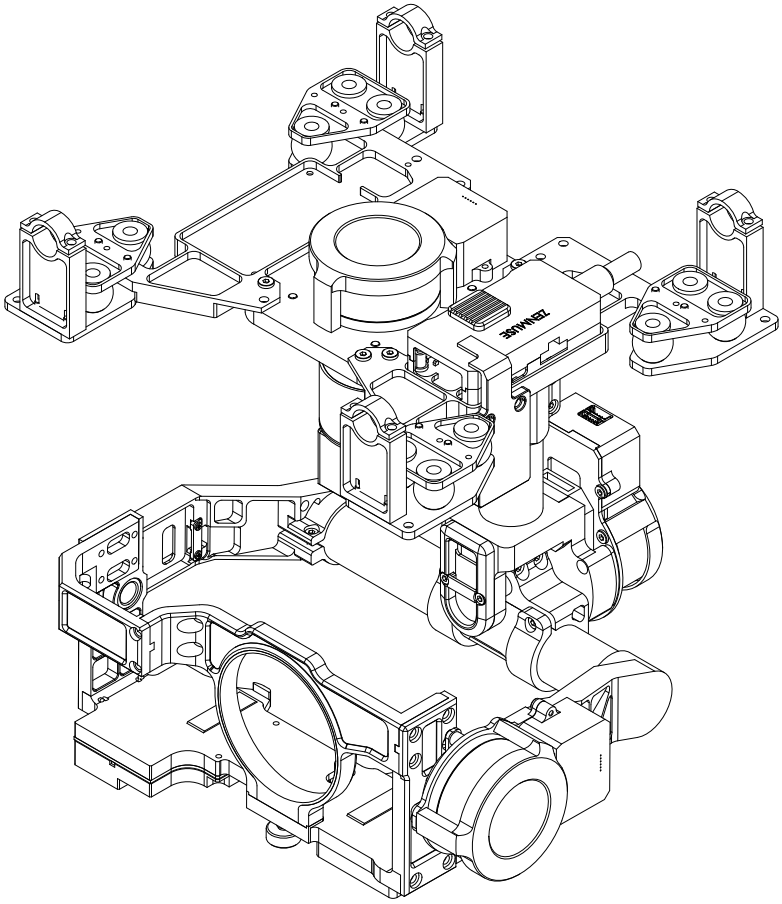
Zenmuse Z15-GH4 (HD)

User Manual V1.0

2014.07



Warning & Disclaimer

Do not modify or adjust the Z15-GH4

The Z15-GH4 gimbal has been calibrated specifically for the designated camera and lens before it leaves the factory. Please mount only the designated camera and lens to the Z15-GH4. No adjustments or modifications are needed. Do not add any other component/device (such as filters, lens hood, etc.) to the camera. Please use the original camera battery, otherwise performance may be hindered and internal malfunctions or damage may occur.

Only use the Z15-GH4 gimbal with Flight Control Systems developed by DJI (such as the A2 or WooKong-M, and please upgrade to the latest firmware) for the greatest stability and precision. Please download the corresponding Assistant software and upgrade your Flight Control System's Main Controller firmware, otherwise the Z15-GH4 may not function properly. When the main battery power is connected, please be careful and operate the Flight Control System in the safest way possible. It is strongly recommended that you remove all propellers, use the R/C or flight pack battery power system, and keep children away during gimbal calibration and parameter setup. Carefully follow the appropriate steps to mount and connect the gimbal to your aircraft. Use this manual as well as the related Assistant software. Please respect the AMA's National Model Aircraft Safety Code.

As DJI has no control over the use, setup, final assembly, modification (including use of non-specified DJI parts i.e. motors, ESCs, propellers, etc.) or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. DJI assumes no liability for damage(s) or injuries incurred directly or indirectly from the use of this product.

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Manual Tips

Legend

⚠ Important

Tips

Designated Camera and Lens Type for the Z15-GH4 gimbal

Camera Type: Panasonic GH4/GH3

Lens Type: OLYMPUS M.ZUIKO DIGITAL ED 12mm f/2.0

⚠ If you are using the Panasonic GH3 camera, please use the included HDMI cable that is specifically designed for the GH3. Refer to Mounting a GH3 Camera onto the Z15-GH4 for details.

Firmware versions of supporting DJI Flight Control Systems

WooKong M: V5.26 A2: V2.1

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Product Profile

The Z15-GH4 is a sophisticated gimbal specifically designed for aerial creativity. It has a built-in independent IMU module, special servo drive module, HDMI-HD/AV module, and more. The Z15-GH4 performs well in all modes, including Orientation-locked, Non orientation-locked, and FPV (Reset).

Working Modes			
	Orientation-locked	Non orientation-locked	FPV (Reset)
Gimbal Direction	Gimbal pans with aircraft nose.	Gimbal pan and aircraft nose move separately.	Gimbal pan and aircraft nose are synchronized.
Gimbal and Aircraft Nose Relative Angle	The gimbal direction maintains the same relative angle to the aircraft nose.	The relative angle between the gimbal direction and aircraft nose is controllable.	The relative angle between the gimbal direction and aircraft nose is 0°.
TX Control	Controllable	Controllable	Uncontrollable
Attitude Stability*	YES	YES	YES
Vibration Reduction	YES	YES	YES
Stick Movement Definition	ROLL is locked level in stick commands from 0-2/3 and rotates in commands from 2/3-endpoint; PAN stick commands control the rotation angle and are limited to 40° ; TILT stick commands control the rotation velocity of the gimbal.	Stick commands for gimbal rotation velocity are relative to total stick movement. The stick's center position velocity is 0°/s. Its endpoint is the maximum velocity.	——
Command Linearity	YES	YES	——

Note*: Attitude stability means that the gimbal's ROLL/TILT will not follow the aircraft's ROLL/PITCH movement.

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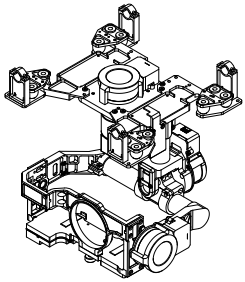
In the Box

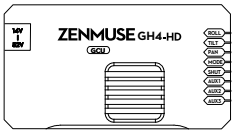
Gimbal ×1

The Z15-GH4 gimbal includes built-in servo drive modules, an independent IMU module, a camera shutter control module and a HDMI-HD/AV module.



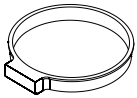
Gimbal Control Unit (GCU) × 1

Connect the GCU to your Flight Control System using the CAN-Bus. The GCU will control the gimbal's pan, roll and tilt movements.



Lens Retaining Ring × 1

For mounting the camera lens.

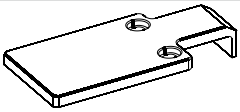


Mounting Bracket × 4

For mounting the gimbal to the landing gear.

Mounting Board for Receiver × 1

For attaching the GCU and providing a convenient mount for the receiver or other devices.



Cable Clamp × 1

For cable management.

Camera Mount Screw × 1

A standard tripod mounting screw.

Lens Retaining Ring Screw × 1

For attaching the lens retaining ring to the gimbal.

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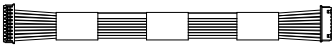
Screw Package × 1

For mounting the gimbal to your aircraft (M2.5*8 cap head screw).

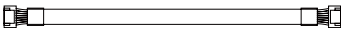
10-Pin to 9-Pin Cable × 2

For connecting the GCU to the gimbal.



7-Pin Cable × 1

For connecting the GCU to the Lightbridge air system.



8-Pin to 6-Pin Cable × 2

For connecting the GCU to the gimbal.

Camera Shutter Control Cable × 1

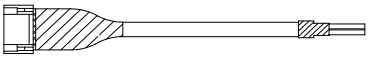
For connecting the gimbal HDMI-HD/AV unit to the camera.

Servo Cable Package × 1

For connecting the GCU and the receiver.

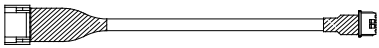
AV Video Power Cable × 1

For connecting the GCU and the wireless video transmission module, and transmitting the AV signal.



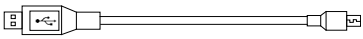
iOSD Mark II Cable × 1

For connecting the GCU and the DJI iOSD Mark II.



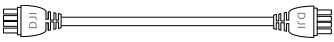
Micro-USB Cable × 1

For adjusting parameters and upgrading firmware via a PC.



CAN-Bus Cable × 1

For the CAN-Bus Flight Control System.



HDMI Cable for GH3 Camera ×1

For connecting a GH3 camera to the gimbal.

Spare Package × 1

Vibration Absorbers, Spare Screws, and Mounting Bracket.

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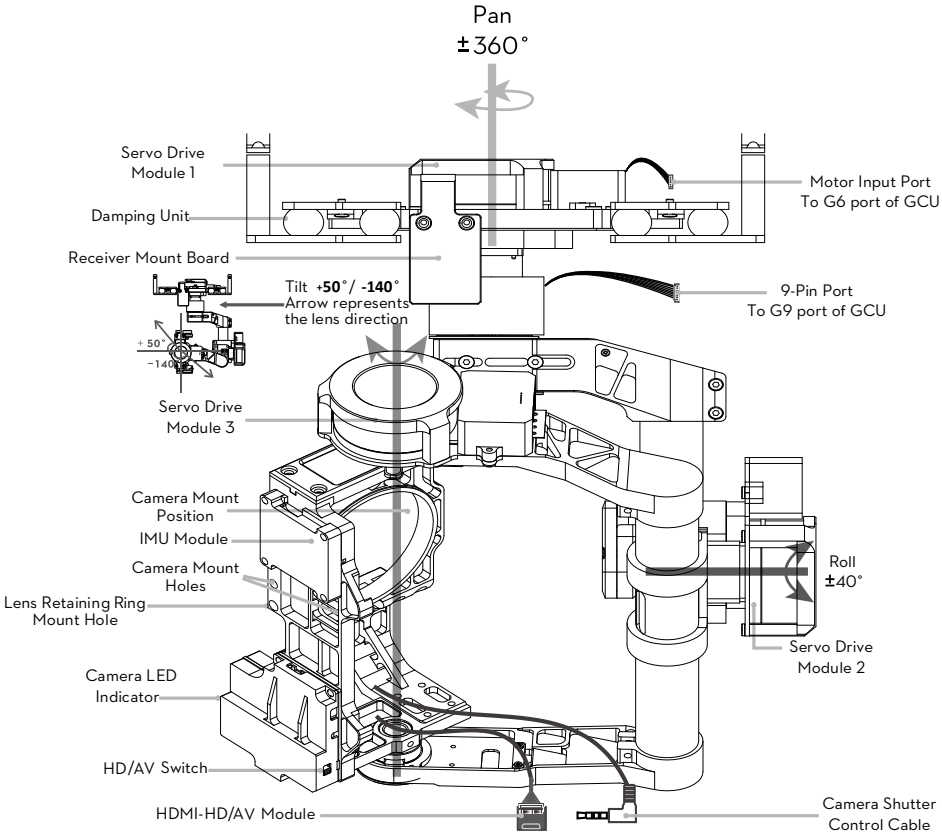
Gimbal Description

⚠ • To avoid motor damage, ensure there is nothing blocking the rotation of the servo drive modules.
• Clear obstacles or immediately cut off the power if any blockage occurs.

• The servo drive modules have two motor command input ports and one private encoder port.
• The HDMI-HD/AV module converts HDMI to HD (or AV) using a cable connected to the camera HDMI port; it also transforms the TX signal into a shutter control signal by using a shutter control cable.
• The camera shutter control cable is removable. Unplug it if this functionality is not needed.



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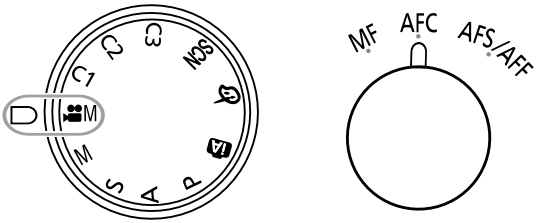
Camera Setup

Follow the steps below to configure your camera to work with the Z15-GH4. Please read the relevant section for your camera.

Panasonic GH4/GH3

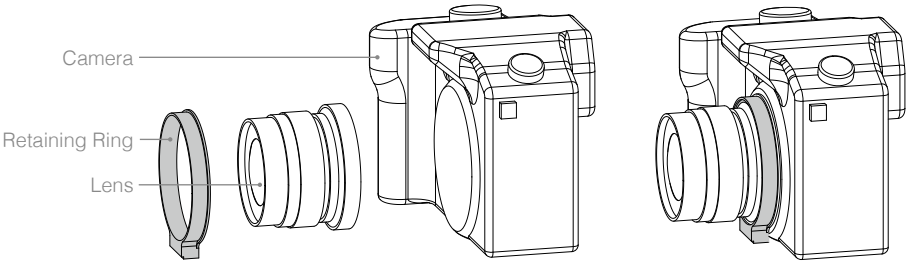


1. Set your camera Mode as Creative video (M).
2. MF/AFC/AFS/AFF Select: Select AFC.
3. Select the Shutter-priority AE mode in the Menu and adjust the shutter speed to 200.
4. Please enable the AF when using the Auto Focus function.

The Creative Video and AFC settings are mandatory, while the other settings are recommended. Note that your output may contain undesired flashing images if the recommended settings are not followed.

Mount

Mounting the Lens



1. Mount the lens onto the camera as shown above.

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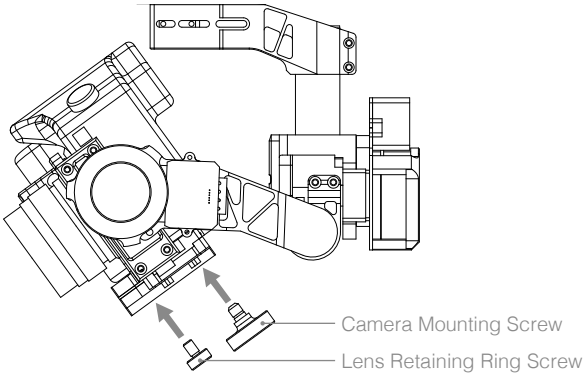
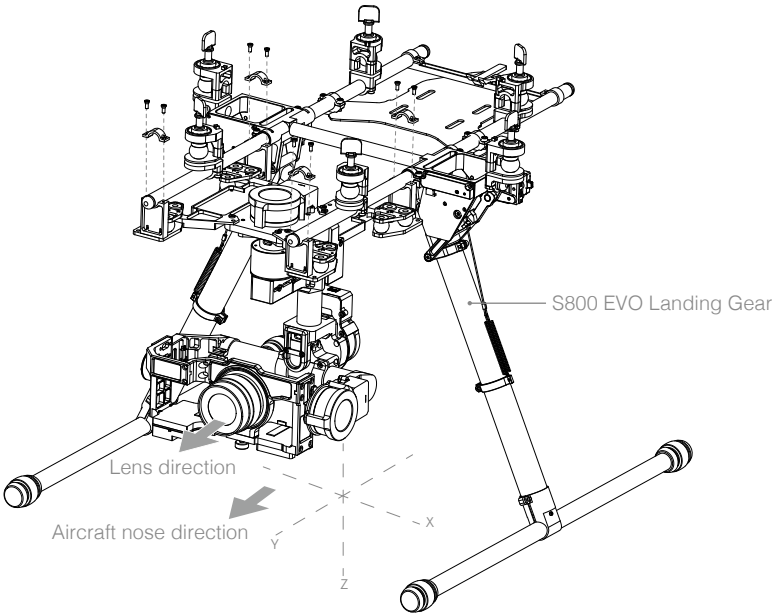
Mounting the Camera



2. Mount the camera onto gimbal as shown above.
3. Adjust the camera and tighten the top camera mounting screw. Then tighten the bottom camera mounting screw and the lens retaining ring screw.

Mounting the Gimbal to the Landing Gear

The following diagram shows the gimbal mounted on a DJI S800 EVO.



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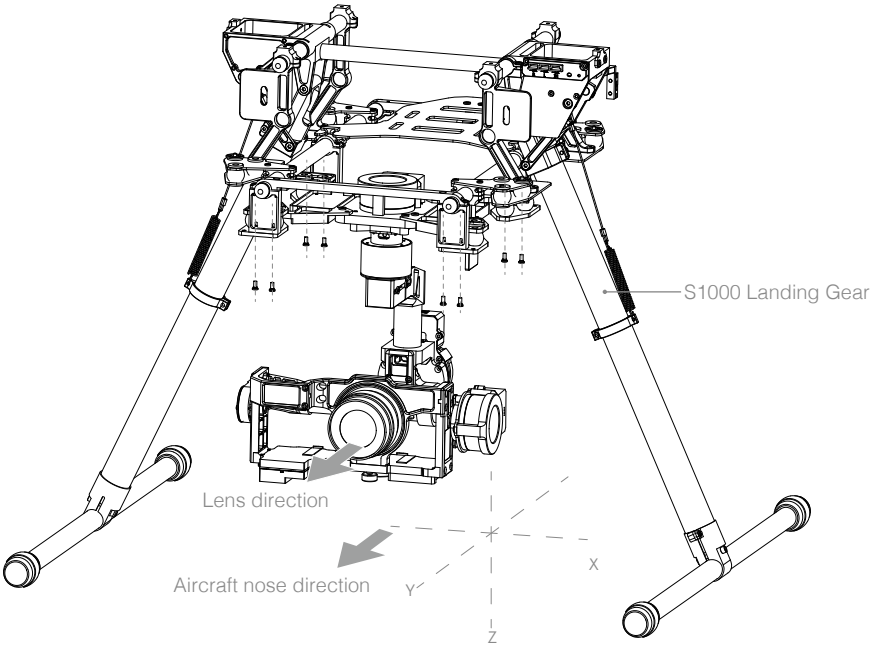
The following the diagram shows the gimbal mounted on a DJI S1000. You may also mount the gimbal onto different landing gear by referring to this diagram.



4. Mount the gimbal onto the landing gear with the mounting brackets. Tighten the screws and use thread lock.

⚠
- Ensure the lens is pointing in the same direction as the aircraft nose.
- Ensure the top and bottom plates of the damping unit stay parallel when mounting. This prevents stretching and distortion.
- Maintain good overall balance when mounting in order to ensure the center of gravity is balanced on each of the three axis lines.
- The gimbal's center of gravity has been set by the factory. The center of gravity directly determines the gimbal's overall performance. Do not adjust the gimbal's center of gravity yourself.
- The gimbal is highly precise and depends on this precision for optimal performance. Do not remove any screws on the gimbal, as this may result in poor performance or damage to the gimbal.
- Do not unplug any cables attached to the gimbal ports or change the mechanical structure.
- Make sure the wiring is correct, otherwise the gimbal may behave abnormally.

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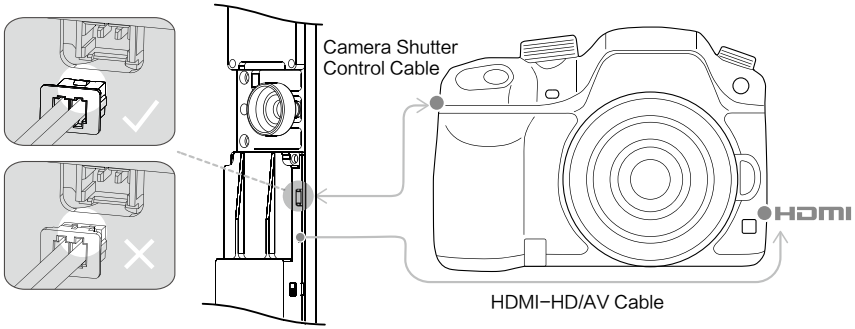
Camera Wiring and Shutter Control

Camera Wiring

Connect the camera correctly. The gimbal works with a HDMI-HD/AV module to convert the video signal and transform a TX signal into a shutter control signal. Ensure the camera is setup first, and then complete the following steps to connect the camera and the gimbal.



1. Connect the gimbal HDMI-HD/AV module to the camera HDMI port with a HDMI-HD/AV connection cable.
2. Connect the camera shutter control cable to the camera.
3. Toggle the HD/AV Switch to the AV position if using a normal wireless video TX module. Toggle the HD/AV Switch to the HD position if using a DJI HD wireless video TX module. (See Page 7 for the location of the HD/AV Switch)

⚠ When disconnecting the cable between the HDMI-HD/AV module and the camera, first dismount the camera, then unplug the HDMI-HD/AV interface.

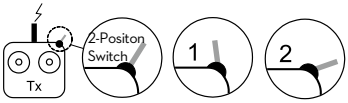
Shutter Control

The Z15-GH4 gimbal can transform a TX command into a shutter control signal. Select a 2-position switch/ channel to use for remote shutter control.

First, make sure the shutter control cable is correctly connected.

Then, for whichever 2-position switch you select, connect the correct receiver channel to the SHUT port. Toggling the 2-position works as follows:

Position-1→ Position-2: Start recording
Position-2→ Position-1: Stop recording
Position-1→ Position-2: Resume recording



⚠ Set the camera to “Creative video” so the shutter can be used to record video. One toggle switch is used for starting and stopping recording.

If the shutter control does not work correctly, please check each step.

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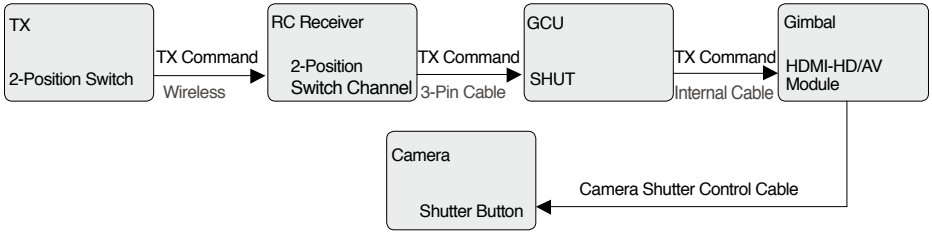
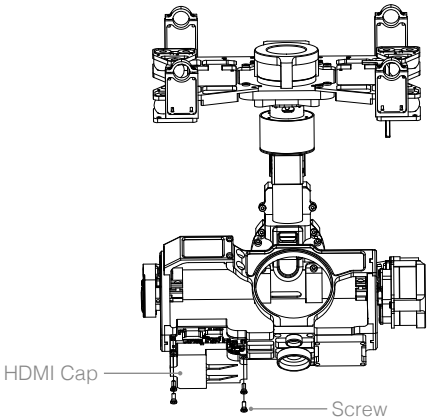
The following diagram shows how the shutter control works.



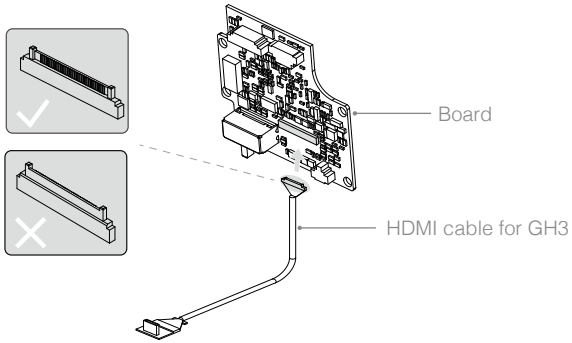
Mounting a GH3 Camera onto the Z15-GH4

Mount a GH3 camera onto Z15-GH4 gimbal with the included HDMI cable made specifically for a GH3 camera. Follow the steps below to complete the mounting process:

1. Loosen the screws on the HDMI cap.



2. Unplug the GH4 HDMI cable from the board. Then plug the specified HDMI cable for a GH3 camera into the board. Be aware of the HDMI cable connection. Ensure that the connector is used as shown below:



3. Re-install the HDMI cap and tighten the screws to finish.

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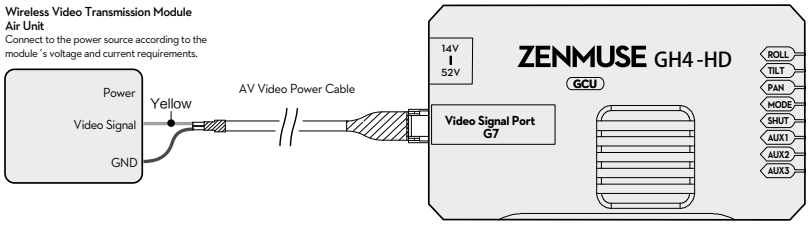
Video Signal Transmission

A wireless video transmission module is required for remote video.

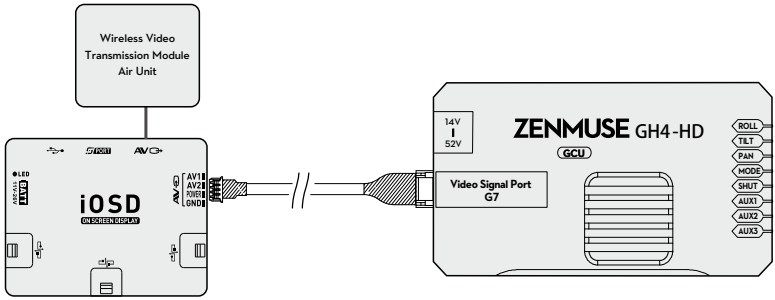
A. AV Wireless Video Transmission



1. Solder the AV Video Signal and GND cables to the wireless video transmission module (Air Unit) as shown above.
2. Plug the AV video power cable into the GCU's G7 port.
3. Toggle the HD/AV Switch to the AV position. (See Page 7 for the location of the HD/AV Switch)
4. Power on the gimbal. If the gimbal LED indicator blinks yellow, it is functioning normally. If the LED indicator shows a continuous, unblinking yellow light, the video signal is lost. Check the connections between the camera and the HDMI video input.

⚠
- Complete the connection between the wireless video transmission module and the GCU before powering on the gimbal.
- A standard AV video power cable is recommended.
- Be sure to solder the AV video power cable to the wireless video transmission module correctly. As the cable carries power, ensure the cables are insulated or wrapped to prevent a short circuit.
- Connect the wireless video transmission module to a power source, as the GCU cannot supply power. Make sure the power source provides a safe voltage for your own devices, according to the wireless video transmission module's requirements.

B. DJI iOSD Mark II and AV Wireless Video Transmission



1. Connect the iOSD Mark II cable to the GCU's G7 port.
2. Complete the other connections between the iOSD Mark II cable and the wireless video transmission module, according to their manuals.
3. Toggle HD/AV Switch to the AV position. (See Page 7 for the location of the HD/AV Switch)
4. Power on the gimbal. If the gimbal LED indicator blinks yellow, it is functioning normally. If the LED indicator shows a continuous, unblinking yellow light, the video signal is lost. Check the connections between the camera and the HDMI video input.

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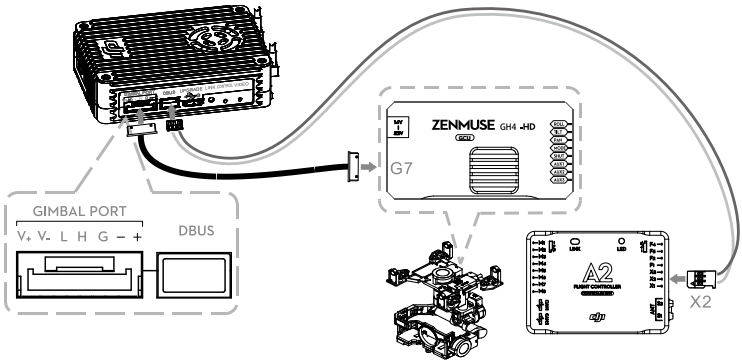
⚠ Make sure to connect the wireless video transmission module and the iOSD Mark II cable to the GCU before powering on.

C. DJI Lightbridge Air System

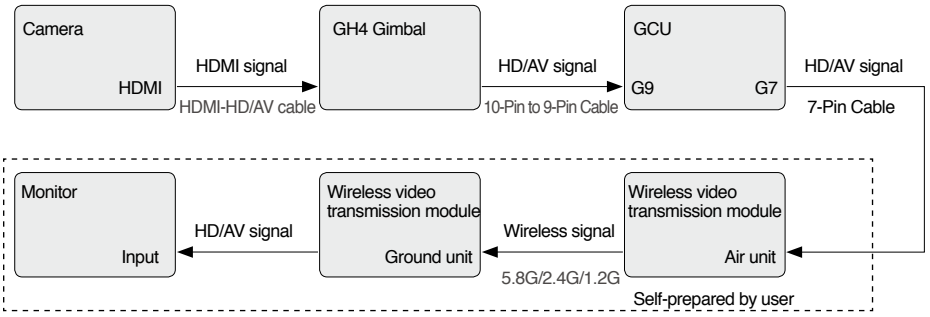


This example is based on a Z15-GH4 gimbal and the A2 flight control system.

1. Connect the Gimbal Port on the Lightbridge Air System to the G7 port on the Z15-GH4 GCU using the supplied HD video power cable (7-pin cable).
2. Connect the DBUS port on the Lightbridge Air System to the DBUS port (X2 port) on the A2 flight control system. Toggle the HD/AV switch to the HD position.
3. Refer to the Lightbridge and A2 flight control system manuals to complete the connection.

⚠
- The HD video power cable is included with the Z15-GH4 gimbal. To transmit gimbal and aircraft signals, connect the RC receiver to the DJI Lightbridge ground system when connecting the GCU.
- Always connect the wireless video transmission module to the GCU before powering on.
- A standard HD video power cable (7-pin cable) is recommended.
- Complete the other connections according to the Lightbridge user manual.
- If the gimbal LED indicator blinks red continuously, please power cycle the gimbal. (Power it off, then power it back on)

If the video signal does not transmit, check each step.



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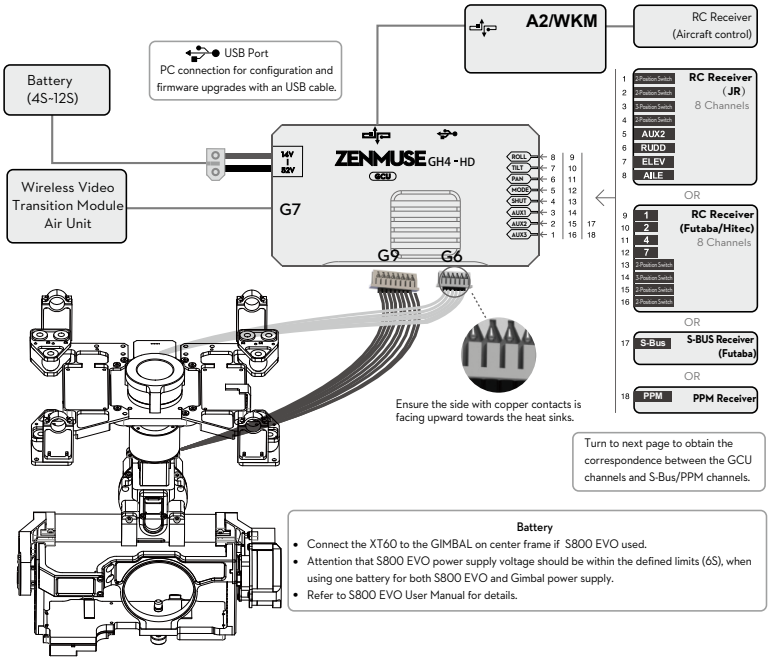
GCU Wiring

GCU Wiring

WooKong-M users can connect the GCU to any spare CAN-Bus port on the flight control system by using a CAN-Bus cable. A2 users should connect the GCU to the port labeled CAN1. Alternatively, you may connect the GCU to the CAN port located on any modules that are already connected to the A2's CAN1 port via a CAN-Bus cable.



A2/WooKong-M

Please refer to your A2/WooKong-M User Manual for all connection and configuration details.

Gimbal Control Unit (GCU)

1. Make sure all ports are accessible when installing your MC so as to facilitate wiring and software configuration.
2. In 3-pin ports, the pins near the nicks are the signal pins.
3. Use the 6-pin cable for the G6 port, and the 10-pin to 9-pin cable for the G9 port.
4. DO NOT cover the heat sinks, and keep them unobstructed at all times.
5. The IMU module is NOT waterproof or oil proof.

RC Receiver

1. The diagram on the previous page shows example connections. The aircraft signal will transmit through the DJI Lightbridge ground system. After connecting to the Lightbridge, it is not necessary to connect with the RC receiver.
2. Prepare 2 TXs, one for gimbal control, and the other for aircraft control. Refer to the 2-Pilots Solution for more detail.
3. If only one receiver is used for both aircraft and gimbal control, refer to the 1-Pilot Solution for more detail.
4. Setup the Aileron, Elevator, and Rudder channels on the gimbal control TX. The command stick will control gimbal rotation velocity. The center position is 0, and the end point is maximum velocity in both clockwise and counter clockwise directions. (The end point is 100%)
5. Choose one 3-position switch/channel to use as the Z15-GH4 Working Mode switch. (MODE)
6. Choose one 2-position switch/channel to use as the camera shutter control switch (SHUT), and another 2-position switch to use as the camera lens orientation switch in Reset Mode (AUX2).
7. Please refer to the A2/Wookong-M User Manual for aircraft control settings. Connect the receiver to the GCU correctly.

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GCU Ports

The following table shows the connections between the GCU channels and the relevant TX channels.

TX Channels		GCU Channels	Indications
JR	Futaba/Hitec		
AILE	1	ROLL	For roll axis control (left/right). Velocity is zero if disconnected.
ELEV	2	TILT	For tilt axis control. Velocity is zero if disconnected.
RUDD	4	PAN	For pan axis control. Velocity is zero if disconnected.
AUX2	7	MODE	For Working Mode switch.
2-position switch channel		SHUT	For camera shutter control (both taking photos and recording video are available). Off if disconnected.
2-position switch channel		AUX1	Reserved channel.
2-position switch channel Or Futaba S-Bus channel		AUX2	When AUX2 is connected to a 2-position switch channel, it is used as a camera orientation (down or forward) switch in FPV Mode (Reset). The camera orientation is forward if disconnected. Or if you are using a S-Bus receiver, connect the recever to the AUX2 port.
PPM channel		AUX3	If you are using a PPM receiver, connect the receiver to the AUX3 port.

The following table shows the corresponding relationship between the GCU and the S-Bus/PPM channels.

S-Bus/PPM Channels	GCU Channels	S-Bus/PPM Channels	GCU Channels
1	ROLL	5	SHUT
2	TILT	8	AUX1
4	PAN	9	AUX2
7	MODE	6	AUX3

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Working Mode/AUX2 Switch Setup

Working Mode Switch Settings

Whichever 3-position switch you select to use as the Working Mode switch, wire the relevant channel from the receiver to the MODE port. At each switch position, use end-point fine tuning to set channel AUX2(JR) or 7(Futaba/Hitec) for all three Working Modes:

Orientation-locked	MODE channel end-point 60%~90%
FPV (Reset)	Back to center
Non orientation-locked	MODE channel end-point 60%~90%

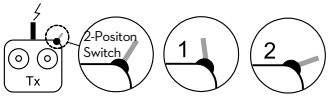
⚠
- The gimbal will work in Orientation-locked mode if the MODE channel is disconnected.
- FPV mode is the default startup mode when the MODE channel is connected.
- The Working Mode from the previous power cycle will be retained if the cable between MODE and the RC receiver is disconnected during operation.

- For a 3-position switch, you may assign:
  Position-1 to Non orientation-locked
  Position-2 to FPV Mode (Reset)
  Position-3 to Orientation-locked
  Position-1 and Position-3 can be inversely assigned.

- One 2-position switch can be assigned for any two of the working modes, if preferred.

AUX2 Switch Settings

The Z15-GH4 supports toggling the camera lens down or forward in FPV Mode (Reset). Please choose a 2-position switch for this function and wire the relevant channel of the receiver to the AUX2 port. You may assign: Position-1 to DOWN; Position-2 to FORWARD; or reverse the assignment.



⚠
- This function will only work in FPV Mode (Reset).
- When this function is active, if the Working Mode is ever changed to FPV Mode (Reset), the gimbal will force the camera lens to face forward or down, depending on current the location of the AUX2 switch.
- The camera orientation is forward if AUX2 is disconnected.

If AUX2 is connected to a Futaba S-Bus channel, it is then used as the input channel for S-Bus control.

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PC Assistant Tuning

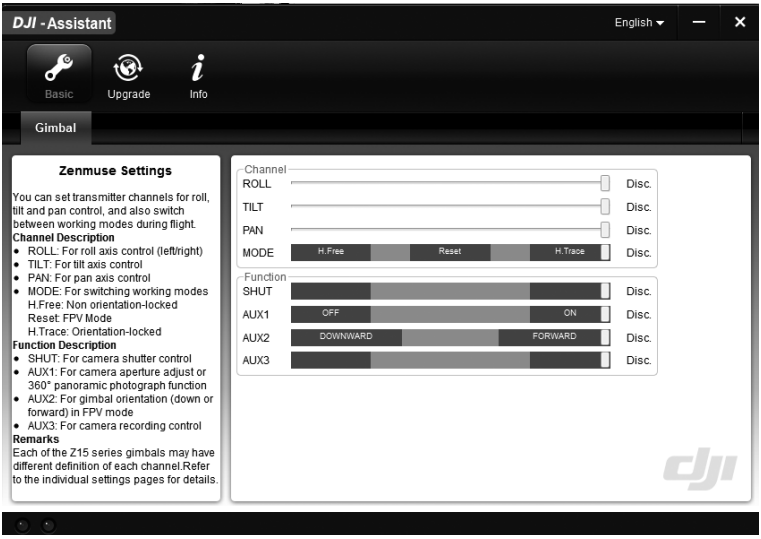
Installation and Usage

1. Ensure the most recent drivers are installed correctly. This should have been done before using the A2 or WooKong-M software.
2. Download the appropriate Assistant installer from DJI.com.
3. Double click the Assistant installer and follow the steps to finish the installation.
4. Run Assistant.
5. Upgrade the firmware or configure parameters using Assistant as needed.

⚠ The Assistant installer can be used on Windows XP, Win7, and Win8 (32 or 64 bit).

Basic Setting

You can set transmitter channels for roll, tilt and pan control, and also switch between working modes during flight. Move your cursor to each area or refer to this manual for more details.



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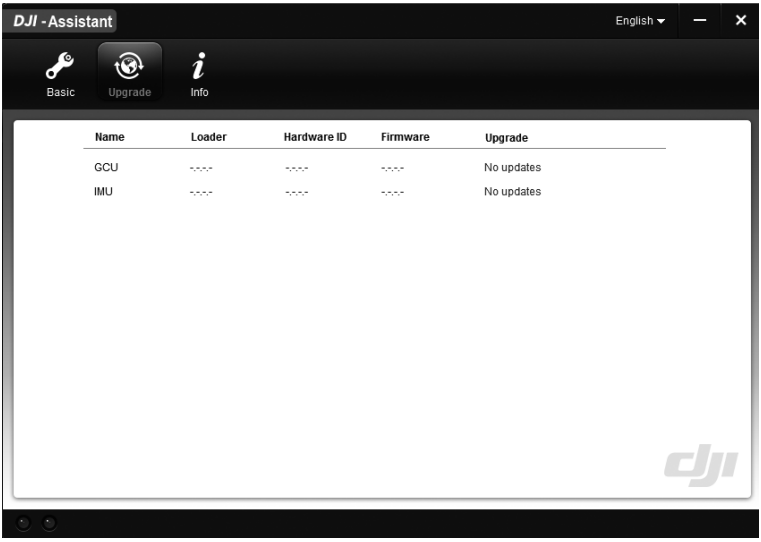
Upgrade

You can view the latest firmware version information on this page. Upgrade the firmware by following the steps below:

1. Connect the gimbal to your computer with a Micro-USB cable, and wait until the blue indicator LED in the Assistant software is blinking.
2. Click “Upgrade”.
3. Wait for the download to finish.
4. Click “Upgrade” again and then click “Confirm”.
5. Power cycle the gimbal (turn it off, then on again) after the upgrade is complete.

⚠
- Ensure your computer is connected to the internet.
- Close any antivirus programs and network firewalls during the upgrade.
- Ensure the gimbal is powered on during the upgrade.
- Do not disconnect the USB cable during the upgrade.



Info

You can check the Assistant version via Info.

S/N is a 32 digit authorization code for function activations. The authorization code for your unit is filled in at the time of manufacture. In the future, you may be asked to fill in a new S/N if you require function upgrades. Fill in the S/N and then click the Write button. If you fill in an invalid S/N more than 30 times, your gimbal will be locked and you will have to contact our customer support.

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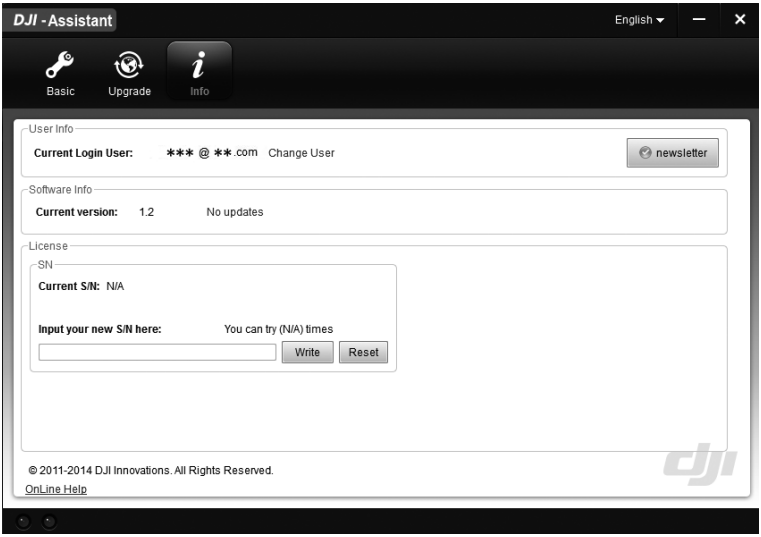

Pre-Flight Check

- Ensure the gimbal is properly installed and attached to the landing gear, and that the camera is mounted correctly and securely.
- Before powering on, spin the gimbal through its complete rotation by hand on each axis to ensure nothing is blocking its movement.
- Ensure all cables are connected correctly, without any plugged in backwards or into the wrong ports.
- Ensure the AV video power cable is properly soldered and shielded if an AV video transmission module is used.
- Verify TX settings.
- Ensure the camera shutter control cable is correctly mounted.
- Ensure the camera menu options and settings are correct.
- Verify a proper connection between the GCU and the RC receiver.
- Verify a proper connection between the GCU and the flight control system.
- Ensure the latest Flight Control System Main Controller firmware is installed.

- Refer to the Gimbal LED Indicator section in the Appendix to understand the connection status between the camera and gimbal.
- Refer to the Troubleshooting section in the Appendix if an abnormal situation occurs.

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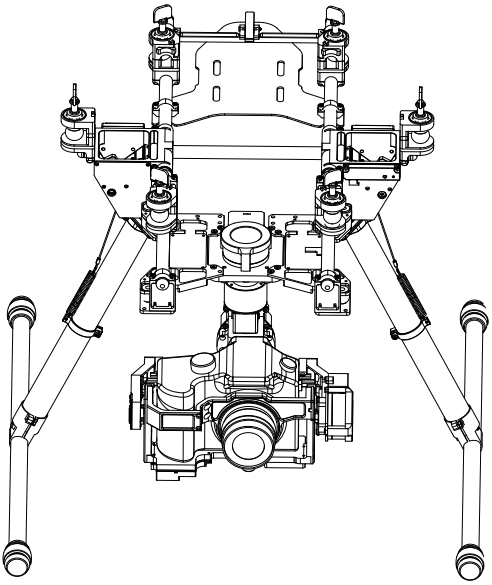
Flight Test



1. Ensure the batteries are fully charged for your TX, GCU, and all of the other devices on your aircraft.
2. Make sure all connections and wiring are in good condition.
3. Switch on the TX.
4. Adjust the camera to a level position on the roll axis of the gimbal.
5. Power on the gimbal and wait for the self initialization test to complete. The roll, pan and tilt axis will rotate quickly at the same time.
6. After self-initialization, the camera lens will point towards the aircraft's nose and each axis of the gimbal should be in the position illustrated above.
7. The gimbal will then go into a second stage of initialization. At this time, each axis will rotate very slowly.
8. Once each axis stops moving, the gimbal is fully initialized and ready to use.
9. Toggle the assigned Working Modes switch on your TX and make sure it is working properly.
10. Switch the Working Modes to Non orientation-locked, FPV Mode (Reset), and Orientation-locked Mode respectively. Then push the controller sticks lightly in the Roll, Tilt and Pan directions to check that the gimbal moves in the corresponding directions. If not, see Working Mode/AUX2 Switch Setup to correct your settings.

⚠
- Power off the camera during the initialization.
- If the gimbal does not match the diagram after initialization, please refer to the Troubleshooting section in Appendix.

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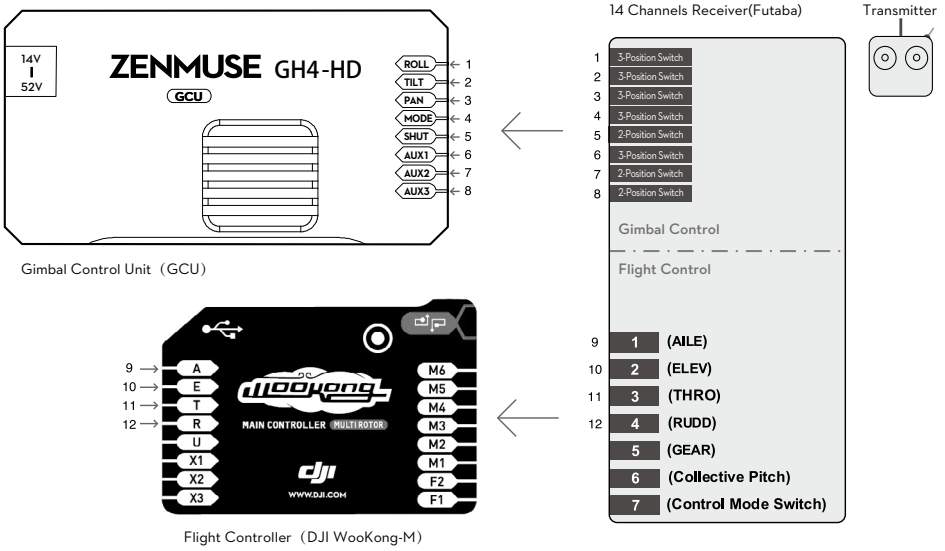
Appendix

Attention

For safety reasons, please pay careful attention to all of the following items:

1. To avoid motor damage, ensure nothing blocks the servo drive module's total range of movement.
2. Before powering on, spin the gimbal through its complete rotation by hand on each axis to ensure nothing is blocking the mechanical movement of the gimbal.
3. Be sure to mount the side of servo drive module 1 with the ports facing towards the aircraft tail.
4. The gimbal's center of gravity has been preset. The gimbal balance is directly related to its performance. Please do not adjust the gimbal's center of gravity by yourself.
5. The gimbal is a sophisticated device. Do not remove any screws from the gimbal. Doing so may result in poor performance or even damage.
6. Do not unplug any cables attached to the gimbal ports or change the mechanical structure.
7. Make sure all wiring is correct, otherwise the gimbal may not operate correctly or efficiently.
8. Make sure to connect the wireless video transmission module to the GCU prior to powering on the system.
9. We recommend use of the included AV video power cable, if needed.
10. Be sure to solder the AV video power cable to the wireless video transmission module correctly. Ensure the cables are insulated and protected to prevent any type of short circuit.
11. Pay close attention to the voltage of S800 EVO/S1000 and be sure it is within the defined limits (6S) when using one battery for both the S800 EVO/S1000 and as a power supply for the gimbal.
12. Never touch the contact points of a power cable to the gimbal; this may lead to a short circuit of the gimbal, resulting in complete failure.
13. Before powering on, adjust the roll axis of the gimbal to be level.

1-Pilot Solution



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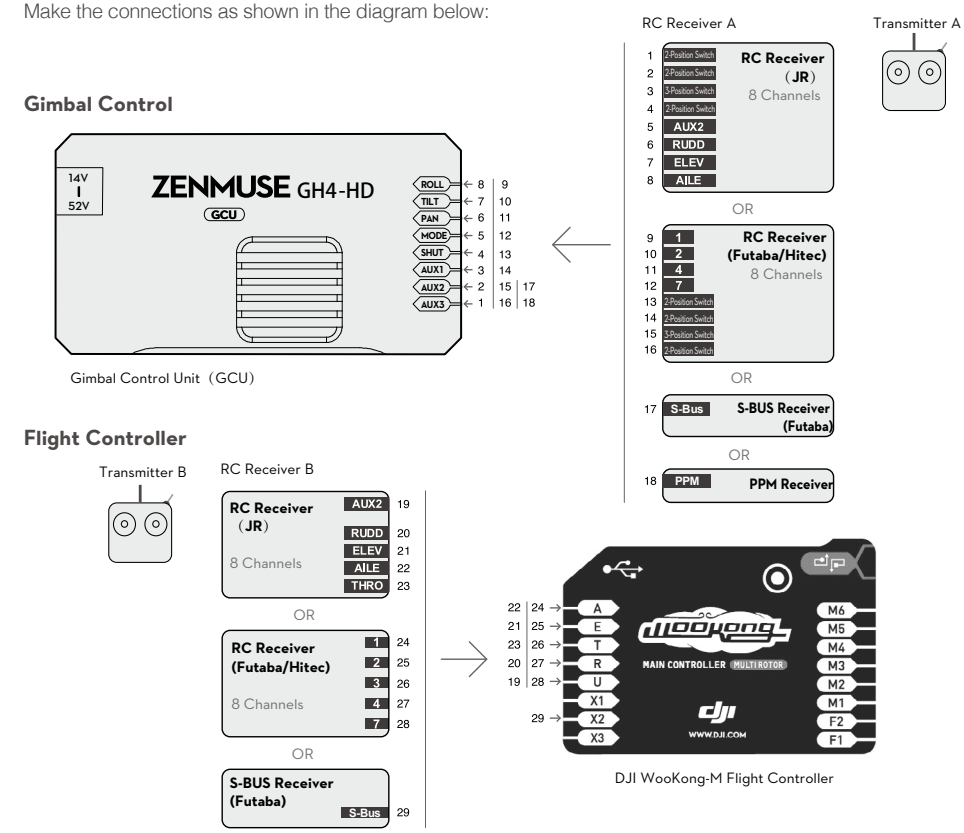
1. Prepare one 14-channel TX/RC receiver for the aircraft and gimbal control. Above is an example of the wiring configuration.
2. Setup the Aileron, Elevator, Throttle, and Rudder channels on your TX for aircraft roll, elevator, throttle, and rudder control. Also, connect the TX's AUX2 for aircraft control modes (Please refer to your Flight Control System's user manual).
3. Choose three 3-position switches to use for the gimbal ROLL, TILT, and PAN rotation control. The center position of each switch is 0 velocity, and the end point positions are maximum velocity.
4. Choose one 3-position switch/channel as the gimbal's Working Modes switch (MODE).
5. Choose one 2-position switch/channel as the camera shutter control switch (SHUT).
6. Connect the receiver to the GCU and Flight Control System Main Controller correctly.

2-Pilot Solution

• Two transmitters and two receivers are required.
• Transmitter A and receiver A are used to control the gimbal.
• Transmitter B and receiver B are used to control the aircraft.
Make the connections as shown in the diagram below:



Please refer to the GCU Wiring section for more details.

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Port Descriptions

GCU	
ROLL	For roll axis control
TILT	For tilt axis control
PAN	For pan axis control
MODE	For Working Mode switch
SHUT	For camera shutter control
AUX1	Reserved channel
AUX2	For Gimbal Orientation (down or forward) switch in FPV Mode ; S-Bus Receiver
AUX3	PPM Receiver
G7	1. Connect to the wireless video transmission module, for transmitting AV or HD signals 2. Connect to DJI Lightbridge, for transmitting HD, gimbal and aircraft control signals
XT60	Connect to the battery (or to GIMBAL if DJI S800 EVO is used)
G6	Connect to Gimbal, for transmitting motor commands
G9	Connect to Gimbal, for transmitting the video signal
	Micro-USB port: for PC connection (Assistant configuration and firmware upgrades)
	CAN-Bus port: Use CAN-Bus to connect GCU to the flight control system
Gimbal	
HDMI-HD/AV Port	To Camera HDMI port
Motor Command Input Port	To GCU G6
10-Pin to 9-Pin Cable Port	To GCU G9

Gimbal LED Indicator

Description	LED Indicator
HD mode, HDMI-HD/AV module transmits normally	G ····· LED is blinking green.
HD mode, without camera HDMI video input	G Green LED is solid on.
HD mode, DJI Lightbridge App video source has been set to “HDMI/AV”	Y Yellow LED is solid on.
AV mode, HDMI-HD/AV module transmits normally	Y ····· LED is blinking yellow.
AV mode, without camera HDMI video input	Y Yellow LED is solid on.
HD video transmission module and gimbal is disconnected	R ····· LED is blinking red.

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Troubleshooting

NO.	The Problem	The Cause	What to Do
1	The gimbal keeps drifting after initialization.	(1) The TX trims are too high. (2) The GCU and Flight Control System have been disconnected. (3) The gimbal direction is not pointing in the same direction as the aircraft's nose.	(1) Adjust the TX trims. (2) Connect the GCU and Flight Control System. (3) Ensure the gimbal direction is pointing in the same direction as the aircraft's nose.
2	The gimbal is in an incorrect position after initializing.	Abnormal calibration after manufacturing.	Please contact your local dealer or DJI customer service.
3	Cannot distinguish the gimbal's direction when in use.	BVR (Beyond Visibility Range) flight.	Switch to FPV Mode first, then to another Working Mode as needed.
4	The gimbal LED is blinking red.	(1) There is a disconnected cable between the gimbal and camera. (2) The camera is off. (3) Camera setup failure.	(1) Make sure all cables are securely connected. (2) Power on the camera. (3) Set the HDMI resolution to 1080i.
5	The gimbal's green or yellow LED is continuously on, but no video is displayed.	(1) The HDMI-HD/AV transmission module is disconnected from the camera. (2) The camera is powered off. (3) In HD mode, the DJI Lightbridge App video source has been set to "HDMI/AV".	(1) Check HDMI-HD/AV transmission module connection. (2) Power on the camera. (3) Change the DJI Lightbridge App video source to "HD Gimbal".

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Specifications

General		
Built-In Functions	• Three Working Modes Orientation-locked control Non orientation-locked control FPV mode (Reset) • Built-in independent IMU module • DJI gimbal special servos drive module	• HDMI- HD/AV module • Wireless video transmission supported • Camera shutter control supported • Wide range voltage input supported • S-Bus/PPM Receiver supported
Peripheral		
Supported Camera	Panasonic GH4/GH3	
Supported Lens	OLYMPUS M.ZUIKO DIGITAL ED 12mm f2.0	
GCU Input Power	4S~12S LiPo (Recommend 6S if with S800 EVO or S1000)	
Control Requirement	At least four spare receiver channels	
Assistant Software System Requirements	Windows XP SP3; Windows 7; Windows 8 (32 or 64 bit)	
Mechanical & Electrical Characteristics		
Working Current	• Static current: 200mA (@25V) • Dynamic current: 400mA (@25V) • Locked-rotor current: 4A (@25V)	
Operating Temperature	-10°C ~ 50°C	
Weight	1.26Kg	
Dimensions	233mm x 210mm x 192mm	
GCU Weight	63g	
GCU Dimensions	64.2 mm × 34.1mm × 19.5mm	
Working Performance		
Load Weight (Reference Value)	690g(@Panasonic GH4 with OLYMPUS M.ZUIKO DIGITAL ED 12mm f2.0, Battery and SD Card)	
Controlled Angle Accuracy	±0.01°	
Maximum Controlled Rotation Speed*	Pan axis: ±130°/s Tilt axis: ±130°/s Roll axis: ±30°/s	
Controlled Rotation Range	Pan axis control: ±360° continuous rotation Tilt axis control: +50°/-140° Roll axis control: ±40°	

Note*: Gimbal's Maximum Controlled Rotation Speed corresponds to TX stick input pushed to 100% end-points.

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User manual is subject to change without prior notice.

You may visit DJI offical website to obtain the latest version of user manual.

http://www.dji.com/product/zenmuse-z15-gh4-hd/download

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